

EXHIBIT 2

December 1998

Curriculum Vitae

Name: Robert D. Willig

Address: 220 Ridgeview Road, Princeton, New Jersey 08540

Birth: 1/16/47; Brooklyn, New York

Marital Status: Married, four children

Education: Ph.D. Economics, Stanford University, 1973
Dissertation: Welfare Analysis of Policies
Affecting Prices and Products.
Advisor: James Rosse

M.S. Operations Research, Stanford University, 1968.

A.B. Mathematics, Harvard University, 1967.

Professional Positions:

Professor of Economics and Public Affairs, Princeton University, 1978-.

Principal External Advisor, Infrastructure Program, Inter-American Development Bank, 6/97-8/98.

Deputy Assistant Attorney General, U.S. Department of Justice, 1989-1991.

Supervisor, Economics Research Department, Bell Laboratories, 1977-1978.

Visiting Lecturer (with rank of Associate Professor), Department of Economics and Woodrow Wilson School, Princeton University, 1977-78 (part time).

Economics Research Department, Bell Laboratories, 1973-77.

Lecturer, Economics Department, Stanford University, 1971-73.

Other Professional Activities:

Advisory Board, Electronic Journal of Industrial Organization and Regulation Abstracts, 1996-.

Visiting Faculty Member (occasional), International Program on Privatization and Regulatory Reform, Harvard Institute for International Development, 1996-.

Member, National Research Council Highway Cost Allocation Study Review Committee, 1995-.

Member, Defense Science Board Task Force on the Antitrust Aspects of Defense Industry Consolidation, 1993-94.

Editorial Board, Utilities Policy, 1990-

Leif Johanson Lecturer, University of Oslo, November 1988.

Member, New Jersey Governor's Task Force on Market-Based Pricing of Electricity, 1987-89.

Co-editor, Handbook of Industrial Organization, 1984-89.

Associate Editor, Journal of Industrial Economics, 1984-89.

Director, Consultants in Industry Economics, Inc., 1983-89, 1991-94.

Fellow, Econometric Society, 1981-.

Organizing Committee, Carnegie-Mellon-N.S.F. Conference on Regulation, 1985.

Board of Editors, American Economic Review, 1980-83.

Nominating Committee, American Economic Association, 1980-1981.

Research Advisory Committee, American Enterprise Institute, 1980-1986.

Editorial Board, M.I.T. Press Series on Government Regulation of Economic Activity, 1979-93.

Program Committee, 1980 World Congress of the Econometric Society.

Program Committee, Econometric Society, 1979, 1981, 1985.

Organizer, American Economic Association Meetings: 1980, 1982.

American Bar Association Section 7 Clayton Act Committee, 1981.

Principal Investigator, NSF grant SOC79-0327, 1979-80; NSF grant 285-6041, 1980-82; NSF grant SES-8038866, 1983-84, 1985-86.

Aspen Task Force on the Future of the Postal Service, 1978-80.

Organizing Committee of Sixth Annual Telecommunications Policy Research Conference, 1977-78.

Visiting Fellow, University of Warwick, July 1977.

Institute for Mathematical Studies in the Social Sciences, Stanford University, 1975.

Consulting: Bell Laboratories, 1978-79; AT&T, 1978-89, 1991-; Conrail 1978-87, 1991-97; Federal Trade Commission, 1979-82, 1994-96; Pennsylvania Bell, 1980; Simpson Thatcher Bartlett, 1980, 1993-98; American Association of Railroads, 1981, 1985; Math-tech, 1981; Union Pacific Railroad, 1981, 1995-; Family Lines Rail System, 1982; Pepper, Hamilton, and Scheetz, 1981-87, 1991-98; Siemens Corp., 1982; Board of Governors of U. S. Postal Service, 1981; OECD, 1983-85, 1991-95; Sidley & Austin, 1983-89, 1991-98; U.S. Postal Service, 1983-84; Echlin Inc., 1982-83; United Airlines, 1983, 1991-98; Consultants in Industry Economics, 1983-89, 1991-; Wiley, Malehorn & Sirota, 1983-89; City of Newark, 1984; Arnold & Porter, 1986-89, 1991-; Howrey & Simon, 1985-88, 1993-; Kodak, 1987-89; Crowell & Moring, 1988; Viacom 1989, 1991-98; Bell Atlantic, 1991-94; Intel, 1991-93; AOPL, 1993; IBM, 1993-96; Merck, 1993-1995; Harkins Cunningham, 1993-96; Boeing, 1993-98; Niagra Mohawk, 1994; PSE&G, 1994-1996; Microsoft, 1994; Coca-Cola Co., 1994-; Digital Equipment Corp. 1997-98; World Bank 1994-; Inter-American Development Bank, 1997-; Air Transport Association of America, 1998.

Published Articles and Book Chapters:

"Economic Principles to Guide Post-Privatization Governance," forthcoming in Can Privatization Deliver? Infrastructure for Latin America, R. Willig co-editor, Johns Hopkins Press, 1999.

“Access and Bundling in High-Technology Markets,” (with J. A. Ordover), forthcoming in Competition, Convergence and the Microsoft Monopoly, T. Lenard editor.

“Competitive Rail Regulation Rules: Should Price Ceilings Constrain Final Products or Inputs?,” (With W. J. Baumol), Journal of Transport Economics and Policy, Vol. 33, Part 1, pp. 1-11.

“Economic Effects of Antidumping Policy,” Brookings Trade Forum: 1998, 19-41.

“Consumer’s Surplus Without Apology,” reprinted in Readings in Microeconomic Theory, M. M. La Manna (ed.), Dryden Press, 1997, pp. 201-212.

“Interview With Economist Robert D. Willig,” Antitrust , Vol. 11, No. 2, Spring 1997, pp. 11-15.

“Parity Pricing and its Critics: A Necessary Condition for Efficiency in Provision of Bottleneck Services to Competitors,” (with W. J. Baumol and J. A. Ordover), Yale Journal on Regulation, Vol. 14, No. 1, Winter 1997, pp. 145-164.

“Restructuring Regulation of the Rail Industry,” (with Ioannis Kessides), in Private Sector, Quarterly No. 4, September 1995, pp. 5 - 8. Reprinted in Viewpoint, October, 1995, The World Bank. Reprinted in Private Sector, special edition: Infrastructure, June 1996.

“Competition and Regulation in the Railroad Industry,” (with Ioannis Kessides), in Regulatory Policies and Reform: A Comparative Perspective, C. Frischtak (ed.), World Bank, 1996.

“Economic Rationales for the Scope of Privatization,” (with Carl Shapiro), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 95-130.

“Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly,” (with W. Baumol and E. Bailey), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 245-260.

“Economists’ View: The Department of Justice Draft Guidelines for the Licensing and Acquisition of Intellectual Property,” (with J. Ordover), Antitrust, V. 9, No. 2 (spring 1995), 29-36.

"Public Versus Regulated Private Enterprise," in Proceedings of the World Bank Annual Conference on Development Economics 1993, L. Summers (ed.), The World Bank, 1994.

"Economics and the 1992 Merger Guidelines: A Brief Survey," (with J. Ordover), Review of Industrial Organization, V. 8, No. 2, (1993), pp. 139-150.

"The Role of Sunk Costs in the 1992 Guidelines' Entry Analysis," Antitrust, V. 6, No. 3 (summer 1992).

"Antitrust Lessons from the Airlines Industry: The DOJ Experience," Antitrust Law Journal, V. 60, No. 2 (1992).

"William J. Baumol," (with E. E. Bailey), in New Horizons in Economic Thought: Appraisals of Leading Economists, W. J. Samuels (ed.), Edward Elgar, 1992.

"Anti-monopoly Policies and Institutions," in The Emergence of Market Economies in Eastern Europe, Christopher Clague and Gordon Rausser (eds.), Basil Blackwell, 1992.

"Economics and the 1992 Merger Guidelines," (with Janusz Ordover), in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"On the Antitrust Treatment of Production Joint Ventures," (with Carl Shapiro), reprinted in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"Merger Analysis, Industrial Organization Theory, and Merger Guidelines," Brookings Papers on Economic Activity -- Microeconomics 1991, pp. 281-332.

"On the Antitrust Treatment of Production Joint Ventures," (with C. Shapiro), Journal of Economic Perspectives, Vol. 4, No. 3, Summer 1990, pp. 113-130.

"Economic Rationales for the Scope of Privatization," (with Carl Shapiro), in The Political Economy of Public Sector Reform and Privatization, E.N. Suleiman and J. Waterbury (eds.), Westview Press, Inc., 1990, pp. 55-87.

"Contestable Market Theory and Regulatory Reform," in Telecommunications Deregulation: Market Power and Cost Allocation, J.R. Allison and D.L. Thomas (eds.), Ballinger, 1990.

"Address To The Section," Antitrust Law Section Symposium, New York State Bar Association, 1990.

"Price Caps: A Rational Means to Protect Telecommunications Consumers and Competition," (with W. Baumol), Review of Business, Vol. 10, No. 4, Spring 1989, pp. 3-8.

"U.S.-Japanese VER: A Case Study from a Competition Policy Perspective," (with M. Dutz) in The Costs of Restricting Imports, The Automobile Industry. OECD, 1988.

"Contestable Markets," in The New Palgrave: A Dictionary of Economics, J. Eatwell, M. Milgate, and P. Newman (eds.), 1987.

"Do Entry Conditions Vary Across Markets: Comments," Brookings Papers on Economic Activity, 3 - 1987, pp. 872-877.

"Railroad Deregulation: Using Competition as a Guide," (with W. Baumol), Regulation, January/February 1987, Vol. 11, No. 1, pp. 28-36.

"How Arbitrary is 'Arbitrary'? - or, Toward the Deserved Demise of Full Cost Allocation," (with W. Baumol and M. Koehn), Public Utilities Fortnightly, September 1987, Vol. 120, No. 5, pp. 16-22.

"Contestability: Developments Since the Book," (with W. Baumol), Oxford Economic Papers, December 1986, pp. 9-36.

"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation," in Proceedings from the Telecommunications Deregulation Forum; Karl Eller Center; 1986.

"Perspectives on Mergers and World Competition," (with J. Ordoover), in Antitrust and Regulation, R.E. Grieson (ed.), Lexington, 1986.

"On the Theory of Perfectly Contestable Markets," (with J. Panzar and W. Baumol), in New Developments in The Analysis of Market Structure, J. Stiglitz and F. Mathewson (eds.), MIT Press, 1986.

"InterLATA Capacity Growth and Market Competition," (with C. Shapiro), in Telecommunications and Equity: Policy Research Issues, J. Miller (ed.), North Holland, 1986.

"Corporate Governance and Market Structure," in Economic Policy in Theory and Practice, A. Razin and E. Sadka (eds.), Macmillan Press, 1986.

"Antitrust for High-Technology Industries: Assessing Research Joint Ventures and Mergers," (with J. Ordover), Journal of Law and Economics, Vol 28(2), May 1985, pp. 311-334.

"Non-Price Anticompetitive Behavior by Dominant Firms Toward the Producers of Complementary Products," (with J. Ordover and A. Sykes), in Antitrust and Regulation, F.M. Fisher (ed.), MIT Press, 1985.

"Telephones and Computers: The Costs of Artificial Separation," (with W. Baumol), Regulation, March/April 1985.

"Transfer Principles in Income Redistribution," (with P. Fishburn), Journal of Public Economics, 25 (1984), pp. 1-6.

"Market Structure and Government Intervention in Access Markets," in Telecommunications Access and Public Policy, A. Baughcam and G. Faulhaber (eds.), 1984.

"Pricing Issues in the Deregulation of Railroad Rates," (with W. Baumol), in Economic Analysis of Regulated Markets: European and U. S. Perspectives, J. Finsinger (ed.), 1983.

"Local Telephone Pricing in a Competitive Environment," (with J. Ordover), in Telecommunications Regulation Today and Tomorrow, E. Noam (ed.), Harcourt Brace Jovanovich, 1983.

"Economics and Postal Pricing Policy," (with B. Owen), in The Future of the Postal Service, J. Fleishman (ed.), Praeger, 1983.

"Selected Aspects of the Welfare Economics of Postal Pricing," in Telecommunications Policy Annual, Praeger, 1987.

"The Case for Freeing AT&T" (with M. Katz), Regulation, July-Aug. 1983, pp. 43-52.

"Predatory Systems Rivalry: A Reply" (with J. Ordover and A. Sykes), Columbia Law Review, Vol. 83, June 1983, pp. 1150-1166. Reprinted in Corporate Counsel's Handbook - 1984.

"Sector Differentiated Capital Taxation with Imperfect Competition and Interindustry Flows," Journal of Public Economics, Vol. 21, 1983.

"Contestable Markets: An Uprising in the Theory of Industry Structure: Reply," (with W.J. Baumol and J.C. Panzar), American Economic Review, Vol. 73, No. 3, June 1983, pp. 491-496.

"The 1982 Department of Justice Merger Guidelines: An Economic Assessment," (with J. Ordover), California Law Review, Vol. 71, No. 2, March 1983, pp. 535-574. Reprinted in Antitrust Policy in Transition: The Convergence of Law and Economics, E.M. Fox and J.T. Halverson (eds.), 1984.

"Intertemporal Failures of the Invisible Hand: Theory and Implications for International Market Dominance," (with W.J. Baumol), Indian Economic Review, Vol. XVI, Nos. 1 and 2, January-June 1981, pp. 1-12.

"Unfair International Trade Practices," (with J. Ordover and A. Sykes), Journal of International Law and Politics, Vol. 15, No. 2, winter 1983, pp. 323-337.

"Journals as Shared Goods: Reply," (with J. Ordover), American Economic Review, V. 72, No. 3, June 1982, pp. 603-607.

"Herfindahl Concentration, Rivalry, and Mergers," (with J. Ordover and A. Sykes), Harvard Law Review, V. 95, No. 8, June 1982, pp. 1857-1875.

"An Economic Definition of Predation: Pricing and Product Innovation," (with J. Ordover), Yale Law Journal, Vol. 90: 473, December 1981, pp. 1-44.

"Fixed Costs, Sunk Costs, Entry Barriers, and the Sustainability of Monopoly," (with W. Baumol), Quarterly Journal of Economics, Vol. 96, No. 3, August 1981, pp. 405-432.

"Social Welfare Dominance," American Economic Review, Vol. 71, No. 2, May 1981, pp. 200-204.

"Economies of Scope," (with J. Panzar), American Economic Review, Vol. 72, No. 2, May 1981, pp. 268-272.

"Income-Distribution Concerns in Regulatory Policymaking," (with E.E. Bailey) in Studies in Public Regulation (G. Fromm, ed.), MIT Press, Cambridge, 1981, pp. 79-118.

"An Economic Definition of Predatory Product Innovation," (with J. Ordover), in Strategic Predation and Antitrust Analysis, S. Salop (ed.), 1981.

"What Can Markets Control?" in Perspectives on Postal Service Issues, R. Sherman (ed.), American Enterprise Institute, 1980.

"Pricing Decisions and the Regulatory Process," in Proceedings of the 1979 Rate Symposium on Problems of Regulated Industries, University of Missouri-Columbia Extension Publications, 1980, pp. 379-388.

"The Theory of Network Access Pricing," in Issues in Public Utility Regulation, H.M. Trebing (ed.), MSU Public Utilities Papers, 1979.

"Customer Equity and Local Measured Service," in Perspectives on Local Measured Service, J. Baude, et al. (ed.), 1979, pp. 71-80.

"The Role of Information in Designing Social Policy Towards Externalities," (with J. Ordover), Journal of Public Economics, V. 12, 1979, pp. 271-299.

"Economies of Scale and the Profitability of Marginal-Cost Pricing: Reply," (with J. Panzar), Quarterly Journal of Economics, Vol. 93, No. 4, November 1979, pp. 743-4.

"Theoretical Determinants of the Industrial Demand for Electricity by Time of Day," (with J. Panzar) Journal of Econometrics, V. 9, 1979, pp. 193-207.

"Industry Performance Gradient Indexes," (with R. Dansby), American Economic Review, V. 69, No. 3, June 1979, pp. 249-260.

"The Economic Gradient Method," (with E. Bailey), American Economic Review, Vol. 69, No. 2, May 1979, pp. 96-101.

"Multiproduct Technology and Market Structure," American Economic Review, Vol. 69, No. 2, May 1979, pp. 346-351.

"Consumer's Surplus Without Apology: Reply," American Economic Review, Vol. 69, No. 3, June 1979, pp. 469-474.

"Decisions with Estimation Uncertainty," (with R. Klein, D. Sibley, and L. Rafsky), Econometrica, V. 46, No. 6, November 1978, pp. 1363-1388.

"Incremental Consumer's Surplus and Hedonic Price Adjustment," Journal of Economic Theory, V. 17, No. 2, April 1978, pp. 227-253.

"Recent Theoretical Developments in Financial Theory: Discussion," The Journal of Finance, V. 33, No. 3, June 1978, pp. 792-794.

"The Optimal Provision of Journals Qua Sometimes Shared Goods," (with J. Ordoover), American Economic Review, V. 68, No. 3, June 1978, pp. 324-338.

"On the Comparative Statics of a Competitive Industry With Infra-marginal Firms," (with J. Panzar), American Economic Review, V. 68, No. 3, June 1978, pp. 474-478.

"Pareto Superior Nonlinear Outlay Schedules," Bell Journal of Economics, Vol. 9, No. 1, Spring 1978, pp. 56-69.

"Predatoriness and Discriminatory Pricing," in The Economics of Anti-Trust: Course of Study Materials, American Law Institute-American Bar Association, 1978.

"Economies of Scale in Multi-Output Production," (with J. Panzar), Quarterly Journal of Economics, V. 91, No. 3, August 1977, pp. 481-494.

"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), American Economic Review, V. 67, No. 3, June 1977, pp. 350-365.

"Free Entry and the Sustainability of Natural Monopoly," (with J. Panzar), Bell Journal of Economics, Spring 1977, pp. 1-22.

"Risk Invariance and Ordinally Additive Utility Functions," Econometrica, V. 45, No. 3, April 1977, pp. 621-640.

"Ramsey-Optimal Pricing of Long Distance Telephone Services," (with E. Bailey), in Pricing in Regulated Industries, Theory and Application, J. Wenders (ed.), Mountain State Telephone and Telegraph Co., 1977, pp. 68-97.

"Network Externalities and Optimal Telecommunications Pricing: A Preliminary Sketch," (with R. Klein), in Proceedings of Fifth Annual Telecommunications Policy Research Conference, Volume II, NTIS, 1977, pp. 475-505.

"Otsenka ekonomicheskoi effektivnosti proizvodstvennoi informatsii" ["The Evaluation of the Economic Benefits of Productive Information"] in Doklady Sovetskikh i Amerikanskikh Spetsialistov Predstavlennye na Pervyi Sovetsko-Amerikanskii Simpozium po Ekonomicheskoi Effektivnosti Informat sionnogo Obsluzhivaniia [Papers of Soviet and American Specialists Presented at the First Soviet- American Symposium on Costs and Benefits of Information Services], All Soviet Scientific Technical Information Center, Moscow, 1976.

"Vindication of a 'Common Mistake' in Welfare Economics," (with J. Panzar), Journal of Political Economy, V. 84, No. 6, December 1976, pp. 1361-1364.

"Consumer's Surplus Without Apology," American Economic Review, V. 66, No. 4, September 1976, pp. 589-597.

Books

Can Privatization Deliver? Infrastructure for Latin America, R. Willig co-editor, Johns Hopkins Press, forthcoming 1999.

Handbook of Industrial Organization, (edited with R. Schmalensee), North Holland Press, Volumes 1 and 2, 1989.

Contestable Markets and the Theory of Industry Structure, (with W.J. Baumol and J.C. Panzar), Harcourt Brace Jovanovich, 1982. Second Edition, 1989.

Welfare Analysis of Policies Affecting Prices and Products, Garland Press, 1980.

Unpublished Reports:

"The Scope of Competition in Telecommunications" (with B. Douglas Bernheim)

"Why Do Christie and Schultz Infer Collusion From Their Data?," (with Alan Kleidon), 1995.

"Economic Foundations for Vertical Merger Guidelines," (with B. Douglas Bernheim), 1994.

"Demonopolization," (with Sally Van Sichen), OECD Vienna Seminar Paper, 1993.

"Economic Analysis of Section 337: The Balance Between Intellectual Property Protection and Protectionism," (with J. Ordover) 1990.

"Privatization to Limit Public Sector Discretion," (with Carl Shapiro) 1989.

"Arming Decisions Under Asymmetric Information," 1989.

"Regulation of Information Services," 1987.

"The Effects of Capped NTS Charges on Long Distance Competition," (with M. Katz).

"The Revolution in Telephone Communications Policy."

"Discussion of Regulatory Mechanism Design in the Presence of Research Innovation, and Spillover Effects," 1987.

"Industry Economic Analysis in the Legal Arena," 1987.

"Deregulation of Long Distance Telephone Services: A Public Interest Assessment," (with M. Katz).

"Competition-Related Trade Issues," report prepared for OECD.

"Herfindahl Concentration Index," (with J. Ordover), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, March 1981.

"Market Power and Market Definition," (with J. Ordover), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, May 1981.

"The Continuing Need for and National Benefits Derived from the REA Telephone Loan Programs - An Economic Assessment," 1981.

"The Economics of Equipment Leasing: Costing and Pricing," 1980.

"Rail Deregulation and the Financial Problems of the U.S. Railroad Industry," (with W.J. Baumol), report prepared under contract to Conrail, 1979.

"Price Indexes and Intertemporal Welfare," Bell Laboratories Economics Discussion Paper, 1974.

"Consumer's Surplus: A Rigorous Cookbook," Technical Report #98, Economics Series, I.M.S.S.S., Stanford University, 1973.

"An Economic-Demographic Model of the Housing Sector," (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

Invited Conference Presentations:

Economic Development Institute of the World Bank -- Program on Competition Policy

"Policy Towards Horizontal Mergers" 1998

Twenty-fifth Anniversary Seminar for the Economic Analysis Group of the Department of Justice

"Market Definition in Antitrust Analysis" 1998

HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance

"Infrastructure Architecture and Regulation: Railroads" 1998

EU Committee Competition Conference – Market Power

"US/EC Perspective on Market Definition" 1998

Federal Trade Commission Roundtable

"Antitrust Policy for Joint Ventures" 1998

1998 Antitrust Conference

"Communications Mergers" 1998

The Progress and Freedom Foundation Conference on Competition, Convergence, and the Microsoft Monopoly

"Access and Bundling in High-Technology Markets" 1998

FTC Program on The Effective Integration of Economic Analysis into Antitrust Litigation

"The Role of Economic Evidence and Testimony" 1997

FTC Hearings on Classical Market Power in Joint Ventures

"Microeconomic Analysis and Guidelines" 1997

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| World Bank Economists' Week IV "Making Markets More Effective With Competition Policy" | 1997 |
| Brookings Trade Policy Forum "Competition Policy and Antidumping: The Economic Effects" | 1997 |
| University of Malaya and Harvard University Conference on The Impact of Globalisation and Privatisation on Malaysia and Asia in the Year 2020 "Microeconomics, Privatization, and Vertical Integration" | 1997 |
| ABA Section of Antitrust Law Conference on The Telecommunications Industry "Current Economic Issues in Telecommunications" | 1997 |
| Antitrust 1998: The Annual Briefing "The Re-Emergence of Distribution Issues" | 1997 |
| Inter-American Development Bank Conference on Private Investment, Infrastructure Reform and Governance in Latin America & the Caribbean "Economic Principles to Guide Post-Privatization Governance" | 1997 |
| Harvard Forum on Regulatory Reform and Privatization of Telecommunications in the Middle East "Privatization: Methods and Pricing Issues" | 1997 |
| American Enterprise Institute for Public Policy Research Conference "Discussion of Local Competition and Legal Culture" | 1997 |
| Harvard Program on Global Reform and Privatization of Public Enterprises "Infrastructure Privatization and Regulation: Freight" | 1997 |
| World Bank Competition Policy Workshop "Competition Policy for Entrepreneurship and Growth" | 1997 |
| Eastern Economics Association Paul Samuelson Lecture "Bottleneck Access in Regulation and Competition Policy" | 1997 |
| ABA Annual Meeting, Section of Antitrust Law "Antitrust in the 21st Century: The Efficiencies Guidelines" | 1997 |
| Peruvian Ministry of Energy and Mines Conference on Regulation of Public Utilities "Regulation: Theoretical Context and Advantages vs. Disadvantages" | 1997 |

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| The FCC: New Priorities and Future Directions "Competition in the Telecommunications Industry" | 1997 |
| American Enterprise Institute Studies in Telecommunications Deregulation "The Scope of Competition in Telecommunications" | 1996 |
| George Mason Law Review Symposium on Antitrust in the Information Revolution "Introduction to the Economic Theory of Antitrust and Information" | 1996 |
| Korean Telecommunications Public Lecture "Market Opening and Fair Competition" | 1996 |
| Korea Telecommunications Forum "Desirable Interconnection Policy in a Competitive Market" | 1996 |
| European Association for Research in Industrial Economics Annual Conference "Bottleneck Access: Regulation and Competition Policy" | 1996 |
| Harvard Program on Global Reform and Privatization of Public Enterprises "Railroad and Other Infrastructure Privatization" | 1996 |
| FCC Forum on Antitrust and Economic Issues Involved with InterLATA Entry "The Scope of Telecommunications Competition" | 1996 |
| Citizens for a Sound Economy Policy Watch on Telecommunications Interconnection "The Economics of Interconnection" | 1996 |
| World Bank Seminar on Experiences with Corporatization "Strategic Directions of Privatization" | 1996 |
| FCC Economic Forum on the Economics of Interconnection "Lessons from Other Industries" | 1996 |
| ABA Annual Meeting, Section of Antitrust Law "The Integration, Disintegration, and Reintegration of the Entertainment Industry" | 1996 |
| Conference Board: 1996 Antitrust Conference "How Economics Influences Antitrust and Vice Versa" | 1996 |
| Antitrust 1996: A Special Briefing "Joint Ventures and Strategic Alliances" | 1996 |

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| New York State Bar Association Section of Antitrust Law Winter Meeting "Commentary on Horizontal Effects Issues" | 1996 |
| FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age "Vertical Issues for Networks and Standards" | 1995 |
| Wharton Seminar on Applied Microeconomics "Access Policies with Imperfect Regulation" | 1995 |
| Antitrust 1996, Washington D.C. "Assessing Joint Ventures for Diminution of Competition" | 1995 |
| ABA Annual Meeting, Section of Antitrust Law "Refusals to Deal -- Economic Tests for Competitive Harm" | 1995 |
| FTC Seminar on Antitrust Enforcement Analysis "Diagnosing Collusion Possibilities" | 1995 |
| Philadelphia Bar Education Center: Antitrust Fundamentals "Antitrust--The Underlying Economics" | 1995 |
| Vanderbilt University Conference on Financial Markets "Why Do Christie and Schultz Infer Collusion From Their Data?" | 1995 |
| ABA Section of Antitrust Law Chair's Showcase Program "Discussion of Telecommunications Competition Policy" | 1995 |
| Conference Board: 1995 Antitrust Conference "Analysis of Mergers and Joint Ventures" | 1995 |
| ABA Conference on The New Antitrust: Policy of the '90s "Antitrust on the Super Highways/Super Airways" | 1994 |
| ITC Hearings on The Economic Effects of Outstanding Title VII Orders "The Economic Impacts of Antidumping Policies" | 1994 |
| OECD Working Conference on Trade and Competition Policy "Empirical Evidence on The Nature of Anti-dumping Actions" | 1994 |
| Antitrust 1995, Washington D.C. "Rigorous Antitrust Standards for Distribution Arrangements" | 1994 |

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|---|------|
| ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases? | |
| "Economic Foundations for Vertical Merger Guidelines" | 1994 |
| Conference Board: Antitrust Issues in Today's Economy | |
| "New Democrats, Old Agencies: Competition Law and Policy" | 1994 |
| Federal Reserve Board Distinguished Economist Series | |
| "Regulated Private Enterprise Versus Public Enterprise" | 1994 |
| Institut d'Etudes Politiques de Paris | |
| "Lectures on Competition Policy and Privatization" | 1993 |
| Canadian Bureau of Competition Policy Academic Seminar Series, Toronto. | |
| "Public Versus Regulated Private Enterprise" | 1993 |
| CEPS Symposium on The Clinton Administration: A Preliminary Report Card | |
| "Policy Towards Business" | 1993 |
| Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY | |
| "Discussion of Deregulation of Networks: What Has Worked and What Hasn't" | 1993 |
| World Bank Annual Conference on Development Economics | |
| "Public Versus Regulated Private Enterprise" | 1993 |
| Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process, Santa Fe, NM | |
| "The Economics of Current Issues in Telecommunications Regulation" | 1992 |
| "The Role of Markets in Presently Regulated Industries" | 1992 |
| The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY | |
| "Antitrust in the Global Economy" | 1992 |
| "Monopoly Issues for the '90s" | 1993 |
| Columbia University Seminar on Applied Economic Theory, New York, NY | |
| "Economic Rationales for the Scope of Privatization" | 1992 |
| Howrey & Simon Conference on Antitrust Developments, Washington, DC | |
| "Competitive Effects of Concern in the Merger Guidelines" | 1992 |

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| Arnold & Porter Colloquium on Merger Enforcement, Washington, DC | |
| "The Economic Foundations of the Merger Guidelines" | 1992 |
| American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA | |
| "Applying the 1992 Merger Guidelines" | 1992 |
| OECD Competition Policy Meeting, Paris, France | |
| "The Economic Impacts of Antidumping Policy" | 1992 |
| Center for Public Choice Lecture Series, George Mason University Arlington, VA | |
| "The Economic Impacts of Antidumping Policy" | 1992 |
| Brookings Institution Microeconomics Panel, Washington, DC, | |
| "Discussion of the Evolution of Industry Structure" | 1992 |
| AT&T Conference on Antitrust Essentials | |
| "Antitrust Standards for Mergers and Joint Ventures" | 1991 |
| ABA Institute on The Cutting Edge of Antitrust: Market Power | |
| "Assessing and Proving Market Power: Barriers to Entry" | 1991 |
| Second Annual Workshop of the Competition Law and Policy Institute of New Zealand | |
| "Merger Analysis, Industrial Organization Theory, and Merger Guidelines" | 1991 |
| "Exclusive Dealing and the <u>Fisher & Paykel</u> Case" | 1991 |
| Special Seminar of the New Zealand Treasury | |
| "Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly" | 1991 |
| Public Seminar of the Australian Trade Practices Commission | |
| "Antitrust Issues of the 1990's" | 1991 |
| National Association of Attorneys General Antitrust Seminar | |
| "Antitrust Economics" | 1991 |
| District of Columbia Bar's 1991 Annual Convention | |
| "Administrative and Judicial Trends in Federal Antitrust Enforcement" | 1991 |
| ABA Spring Meeting | |
| "Antitrust Lessons From the Airline Industry" | 1991 |

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| Conference on The Transition to a Market Economy - Institutional Aspects "Anti-Monopoly Policies and Institutions" | 1991 |
| Conference Board's Thirtieth Antitrust Conference "Antitrust Issues in Today's Economy" | 1991 |
| American Association for the Advancement of Science Annual Meeting "Methodologies for Economic Analysis of Mergers" | 1991 |
| General Seminar, Johns Hopkins University "Economic Rationales for the Scope of Privatization" | 1991 |
| Capitol Economics Speakers Series "Economics of Merger Guidelines" | 1991 |
| CRA Conference on Antitrust Issues in Regulated Industries "Enforcement Priorities and Economic Principles" | 1990 |
| Pepper Hamilton & Scheetz Anniversary Colloquium "New Developments in Antitrust Economics" | 1990 |
| PLI Program on Federal Antitrust Enforcement in the 90's "The Antitrust Agenda of the 90's" | 1990 |
| FTC Distinguished Speakers Seminar "The Evolving Merger Guidelines" | 1990 |
| The World Bank Speakers Series "The Role of Antitrust Policy in an Open Economy" | 1990 |
| Seminar of the Secretary of Commerce and Industrial Development of Mexico "Transitions to a Market Economy" | 1990 |
| Southern Economics Association "Entry in Antitrust Analysis of Mergers" | 1990 |
| "Discussion of Strategic Investment and Timing of Entry" | 1990 |
| American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries "Discussion of Network Problems and Solutions" | 1990 |

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| American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition | |
| "Law and Economics Framework for Analysis" | 1990 |
| Banco Nacional de Desenvolvimento Economico Social Lecture | |
| "Competition Policy: Harnessing Private Interests for the Public Interest" | 1990 |
| Western Economics Association Annual Meetings | |
| "New Directions in Antitrust from a New Administration" | 1990 |
| "New Directions in Merger Enforcement: The View from Washington" | 1990 |
| Woodrow Wilson School Alumni Colloquium | |
| "Microeconomic Policy Analysis and Antitrust--Washington 1990" | 1990 |
| Arnold & Porter Lecture Series | |
| "Advocating Competition" | 1991 |
| "Antitrust Enforcement" | 1990 |
| ABA Antitrust Section Convention | |
| "Recent Developments in Market Definition and Merger Analysis" | 1990 |
| Federal Bar Association | |
| "Joint Production Legislation: Competitive Necessity or Cartel Shield?" | 1990 |
| Pew Charitable Trusts Conference | |
| "Economics and National Security" | 1990 |
| ABA Antitrust Section Midwinter Council Meeting | |
| "Fine-tuning the Merger Guidelines" | 1990 |
| "The State of the Antitrust Division" | 1991 |
| International Telecommunications Society Conference | |
| "Discussion of the Impact of Telecommunications in the UK" | 1989 |
| The Economists of New Jersey Conference | |
| "Recent Perspectives on Regulation" | 1989 |
| Conference on Current Issues Challenging the Regulatory Process | |
| "Innovative Pricing and Regulatory Reform" | 1989 |
| "Competitive Wheeling" | 1989 |
| Conference Board: Antitrust Issues in Today's Economy | |
| "Foreign Trade Issues and Antitrust" | 1989 |

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| McKinsey & Co. Mini-MBA Conference | |
| "Economic Analysis of Pricing, Costing, and Strategic Business Behavior" | 1989 |
| | 1994 |
| Olin Conference on Regulatory Mechanism Design | |
| "Revolutions in Regulatory Theory and Practice: Exploring The Gap" | 1989 |
| University of Dundee Conference on Industrial Organization and Strategic Behavior | |
| "Mergers in Differentiated Product Industries" | 1988 |
| Leif Johanson Lectures at the University of Oslo | |
| "Normative Issues in Industrial Organization" | 1988 |
| Mergers and Competitiveness: Spain Facing the EEC | |
| "Merger Policy" | 1988 |
| "R&D Joint Ventures" | 1988 |
| New Dimensions in Pricing Electricity | |
| "Competitive Pricing and Regulatory Reform" | 1988 |
| Program for Integrating Economics and National Security: Second Annual Colloquium | |
| "Arming Decisions Under Asymmetric Information" | 1988 |
| European Association for Research in Industrial Economics | |
| "U.S. Railroad Deregulation and the Public Interest" | 1987 |
| "Economic Rationales for the Scope of Privatization" | 1989 |
| "Discussion of Licensing of Innovations" | 1990 |
| Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change | |
| "Discussion of Regulatory Mechanism Design in the Presence of Research, Innovation, and Spillover Effects" | 1987 |
| Special Brookings Papers Meeting | |
| "Discussion of Empirical Approaches to Strategic Behavior" | 1987 |
| "New Merger Guidelines" | 1990 |
| Deregulation or Regulation for Telecommunications in the 1990's | |
| "How Effective are State and Federal Regulations?" | 1987 |

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| Conference Board Roundtable on Antitrust | |
| "Research and Production Joint Ventures" | 1990 |
| "Intellectual Property and Antitrust" | 1987 |
| Current Issues in Telephone Regulation | |
| "Economic Approaches to Market Dominance: Applicability of Contestable Markets" | 1987 |
| Harvard Business School Forum on Telecommunications | |
| "Regulation of Information Services" | 1987 |
| The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market | |
| "Why Reinvent the Wheel?" | 1986 |
| World Bank Seminar on Frontiers of Economics | |
| "What Every Economist Should Know About Contestable Markets" | 1986 |
| Bell Communications Research Conference on Regulation and Information | |
| "Fuzzy Regulatory Rules" | 1986 |
| Karl Eller Center Forum on Telecommunications | |
| "The Changing Economic Environment in Telecommunications: Technological Change and Deregulation" | 1986 |
| Railroad Accounting Principles Board Colloquium | |
| "Contestable Market Theory and ICC Regulation" | 1986 |
| Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment | |
| "Regulatory Revolution in the Infrastructure Industries" | 1985 |
| Eagleton Institute Conference on Telecommunications in Transition | |
| "Industry in Transition: Economic and Public Policy Overview" | 1985 |
| Brown University Citicorp Lecture | |
| "Logic of Regulation and Deregulation" | 1985 |
| Columbia University Communications Research Forum | |
| "Long Distance Competition Policy" | 1985 |
| American Enterprise Institute Public Policy Week | |
| "The Political Economy of Regulatory Reform" | 1984 |

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| MIT Communications Forum | |
| "Deregulation of AT&T Communications" | 1984 |
| Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference | |
| "Potential Uses of The File" | 1984 |
| Federal Bar Association Symposium on Joint Ventures | |
| "The Economics of Joint Venture Assessment" | 1984 |
| Hoover Institute Conference on Antitrust | |
| "Antitrust for High-Technology Industries" | 1984 |
| NSF Workshop on Predation and Industrial Targeting | |
| "Current Economic Analysis of Predatory Practices" | 1983 |
| The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future | |
| "Contestability As A Guide for Regulation and Deregulation" | 1984 |
| University of Pennsylvania Economics Day Symposium | |
| "Contestability and Competition: Guides for Regulation and Deregulation" | 1984 |
| Pinhas Sapir Conference on Economic Policy in Theory and Practice | |
| "Corporate Governance and Market Structure" | 1984 |
| Centre of Planning and Economic Research of Greece | |
| "Issues About Industrial Deregulation" | 1984 |
| "Contestability: New Research Agenda" | 1984 |
| Hebrew and Tel Aviv Universities Conference on Public Economics | |
| "Social Welfare Dominance Extended and Applied to Excise Taxation" | 1983 |
| NBER Conference on Industrial Organization and International Trade | |
| "Perspectives on Horizontal Mergers in World Markets" | 1983 |
| Workshop on Local Access: Strategies for Public Policy | |
| "Market Structure and Government Intervention in Access Markets" | 1982 |
| NBER Conference on Strategic Behavior and International Trade | |
| "Industrial Strategy with Committed Firms: Discussion" | 1982 |

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| Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks | |
| "Local Pricing in a Competitive Environment" | 1982 |
| International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure | |
| "Theory of Contestability" | 1982 |
| "Product Development, Investment, and the Evolution of Market Structures" | 1982 |
| N.Y.U. Conference on Competition and World Markets: Law and Economics | |
| "Competition and Trade Policy--International Predation" | 1982 |
| CNRS-ISPE-NBER Conference on the Taxation of Capital | |
| "Welfare Effects of Investment Under Imperfect Competition" | 1982 |
| Internationales Institut fur Management und Verwaltung Regulation Conference | |
| "Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies" | 1981 |
| NBER-Kellogg Graduate School of Management Conference on the Econometrics of Market Models with Imperfect Competition | |
| "Discussion of Measurement of Monopoly Behavior: An Application to the Cigarette Industry" | 1981 |
| The Peterkin Lecture at Rice University | |
| "Deregulation: Ideology or Logic?" | 1981 |
| FTC Seminar on Antitrust Analysis | |
| "Viewpoints on Horizontal Mergers" | 1982 |
| "Predation as a Tactical Inducement for Exit" | 1980 |
| NBER Conference on Industrial Organization and Public Policy | |
| "An Economic Definition of Predation" | 1980 |
| The Center for Advanced Studies in Managerial Economics Conference on The Economics of Telecommunication | |
| "Pricing Local Service as an Input" | 1980 |
| Aspen Institute Conference on the Future of the Postal Service | |
| "Welfare Economics of Postal Pricing" | 1979 |
| Department of Justice Antitrust Seminar | |
| "The Industry Performance Gradient Index" | 1979 |

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| Eastern Economic Association Convention | |
| "The Social Performance of Deregulated Markets for Telecommunications Services" | |
| Industry Workshop Association Convention | |
| "Customer Equity and Local Measured Service" | 1979 |
| Symposium on Ratemaking Problems of Regulated Industries | |
| "Pricing Decisions and the Regulatory Process" | 1979 |
| Woodrow Wilson School Alumni Conference | |
| "The Push for Deregulation" | 1979 |
| NBER Conference on Industrial Organization | |
| "Intertemporal Sustainability" | 1979 |
| World Congress of the Econometric Society | |
| "Theoretical Industrial Organization" | 1980 |
| Institute of Public Utilities Conference on Current Issues in Public Utilities Regulation | |
| "Network Access Pricing" | 1978 |
| ALI-ABA Conference on the Economics of Antitrust | |
| "Predatoriness and Discriminatory Pricing" | 1978 |
| AEI Conference on Postal Service Issues | |
| "What Can Markets Control?" | 1978 |
| University of Virginia Conference on the Economics of Regulation | |
| "Public Interest Pricing" | 1978 |
| DRI Utility Conference | |
| "Marginal Cost Pricing in the Utility Industry: Impact and Analysis" | 1978 |
| International Meeting of the Institute of Management Sciences | |
| "The Envelope Theorem" | 1977 |
| University of Warwick Workshop on Oligopoly | |
| "Industry Performance Gradient Indexes" | 1977 |
| North American Econometric Society Convention | |
| "Intertemporal Sustainability" | 1979 |
| "Social Welfare Dominance" | 1978 |
| "Economies of Scope, DAIC, and Markets with Joint Production" | 1977 |

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| Telecommunications Policy Research Conference | |
| "Transition to Competitive Markets" | 1986 |
| "InterLATA Capacity Growth, Capped NTS Charges and Long Distance Competition" | 1985 |
| "Market Power in The Telecommunications Industry" | 1984 |
| "FCC Policy on Local Access Pricing" | 1983 |
| "Do We Need a Regulatory Safety Net in Telecommunications?" | 1982 |
| "Anticompetitive Vertical Conduct" | 1981 |
| "Electronic Mail and Postal Pricing" | 1980 |
| "Monopoly, Competition and Efficiency": Chairman | 1979 |
| "A Common Carrier Research Agenda" | 1978 |
| "Empirical Views of Ramsey Optimal Telephone Pricing" | 1977 |
| "Recent Research on Regulated Market Structure" | 1976 |
| "Some General Equilibrium Views of Optimal Pricing" | 1975 |
| National Bureau of Economic Research Conference on Theoretical Industrial Organization | |
| Discussion of "Compensating Variation as a Measure of Welfare Change" | 1976 |
| Conference on Pricing in Regulated Industries: Theory & Application | |
| "Ramsey Optimal Pricing of Long Distance Telephone Services" | 1977 |
| NBER Conference on Public Regulation | |
| "Income Distributional Concerns in Regulatory Policy-Making" | 1977 |
| Allied Social Science Associations National Convention | |
| "Merger Guidelines and Economic Theory" | 1990 |
| Discussion of "Competitive Rules for Joint Ventures" | 1989 |
| "New Schools in Industrial Organization" | 1988 |
| "Industry Economic Analysis in the Legal Arena" | 1987 |
| "Transportation Deregulation" | 1984 |
| Discussion of "Pricing and Costing of Telecommunications Services" | 1983 |
| Discussion of "An Exact Welfare Measure" | 1982 |
| "Optimal Deregulation of Telephone Services" | 1982 |
| "Sector Differentiated Capital Taxes" | 1981 |
| "Economies of Scope" | 1980 |
| "Social Welfare Dominance" | 1980 |
| "The Economic Definition of Predation" | 1979 |
| Discussion of "Lifeline Rates, Succor or Snare?" | 1979 |
| "Multiproduct Technology and Market Structure" | 1978 |
| "The Economic Gradient Method" | 1978 |
| "Methods for Public Interest Pricing" | 1977 |
| Discussion of "The Welfare Implications of New Financial Instruments" | 1976 |
| "Welfare Theory of Concentration Indices" | 1976 |

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| Discussion of "Developments in Monopolistic Competition Theory" | 1976 |
| "Hedonic Price Adjustments" | 1975 |
| "Public Good Attributes of Information and its Optimal Pricing" | 1975 |
| "Risk Invariance and Ordinally Additive Utility Functions" | 1974 |
| "Consumer's Surplus: A Rigorous Cookbook" | 1974 |
| University of Chicago Symposium on the Economics of Regulated Public Utilities | |
| "Optimal Prices for Public Purposes" | 1976 |
| American Society for Information Science | |
| "The Social Value of Information: An Economist's View" | 1975 |
| Institute for Mathematical Studies in the Social Sciences Summer Seminar | |
| "The Sustainability of Natural Monopoly" | 1975 |
| U.S.-U.S.S.R. Symposium on Estimating Costs and Benefits of Information Services | |
| "The Evaluation of the Economic Benefits of Productive Information" | 1975 |
| NYU-Columbia Symposium on Regulated Industries | |
| "Ramsey Optimal Public Utility Pricing" | 1975 |

Research Seminars:

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| Bell Communications Research (2) | University of California, San Diego |
| Bell Laboratories (numerous) | University of Chicago |
| Department of Justice (3) | University of Delaware |
| Electric Power Research Institute | University of Florida |
| Federal Reserve Board | University of Illinois |
| Federal Trade Commission (4) | University of Iowa (2) |
| Mathematica | Universite Laval |
| Rand | University of Maryland |
| World Bank (3) | University of Michigan |
| Carleton University | University of Minnesota |
| Carnegie-Mellon University | University of Oslo |
| Columbia University (4) | University of Pennsylvania (3) |

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| Cornell University (2) | University of Toronto |
| Georgetown University | University of Virginia |
| Harvard University (2) | University of Wisconsin |
| Hebrew University | University of Wyoming |
| Johns Hopkins University (2) | Vanderbilt University |
| M. I. T. (4) | Yale University (2) |
| New York University (4) | Princeton University (many) |
| Northwestern University (2) | Rice University |
| Norwegian School of Economics and Business Administration | Stanford University (5) |
| | S.U.N.Y. Albany |

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

| | | |
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| In the Matter of |) | |
| |) | |
| The Global Venture of AT&T Corp. and |) | IB Docket No. 98-212 |
| British Telecommunications plc |) | |
| |) | |
| Application of AT&T Corp., VLT Co. L.L.C., |) | |
| Violet License Co. L.L.C., and TNV [Bahamas] |) | |
| Limited for Grants of Section 214 Authority, |) | |
| Modification of Authorizations, and |) | |
| Consent to the Assignment of Licenses |) | |

AFFIDAVIT OF JOHN FINNEGAN

1. My name is John Finnegan. I hold an undergraduate degree from Tufts University and a Master's Degree from Boston College. I have been employed by AT&T Corp. as International Alliances Vice President since 1994. I am also currently the AT&T Transition Leader for Global Sales Products and Services for AT&T's Global Venture with British Telecommunications plc. I was previously Sales Support Vice President for AT&T's Data Networking Offer Management Organization. In these positions, I have become familiar with telecommunications services purchasing practices of multinational corporations ("MNCs") and other large business customers.

2. This affidavit is submitted in support of statements made in the Reply Comments of the Applicants in this proceeding regarding the purchase of international and

global telecommunications services by MNCs. In particular, I will describe how most MNCs engage in the "multi-sourcing" of their communications requirements by spreading their purchases of telecommunications services among two or more different service providers. In addition, I will describe how most MNCs obtain competitive bids for their telecommunications requirements by periodically issuing formal requests for proposals to all interested suppliers. I will further show that it is not uncommon for MNCs to shift their purchases among different service providers over time.

3. MNCs, which are the largest corporations in the world, each purchase millions of dollars of telecommunications services annually, and they are among the most sophisticated buyers of global telecommunications services. In order to minimize the cost of such services and make sure that they obtain the services that best meet their needs, MNCs frequently have in-house communications experts or hire communications consultants to advise them about their purchases of telecommunications services. These MNC customers have developed a number of measures to take full advantage of the many competitive alternatives that are presently available in the market for global telecommunications services. These measures include multi-sourcing of telecommunications purchases and the purchase of telecommunications services through competitive bidding.

4. Multi-sourcing of telecommunications services is widely employed by MNCs for a number of reasons. First, multi-sourcing minimizes any potential disruption of service that might arise in the event that a supplier experiences technical problems on its network

because the MNC can quickly move its traffic to its other suppliers. Second, multi-sourcing encourages continual competition among the MNC's suppliers to serve the MNC. Third, multi-sourcing permits MNCs to take advantage of the special capabilities and strengths of different carriers in providing particular types of services or serving particular geographic regions by enabling the MNC to use one supplier for services of a particular type or in a particular region and another supplier for other types of service or in other regions.

5. As a result of multi-sourcing, most MNC customers of AT&T are also customers of one or more other providers of global telecommunications services. Indeed, for many of its MNC customers, AT&T is not the primary service provider, but provides only a relatively limited portion of the customer's overall annual purchases of global telecommunications services. For example, although Boeing purchases some global network services from AT&T, its primary international service providers are SITA and Sprint. Similarly, although Compaq Computer purchases some global network services from AT&T and C&W, its major supplier is MCI. And although Exxon purchases some global network services from AT&T, its primary international carrier is Global One.

6. Another technique commonly used by MNCs to take advantage of the highly competitive market for global telecommunications services is to structure the competitive bidding process by means of a request for proposal ("RFP"). This process generally begins with a formal request for proposal which sets out the customer's requirements in great detail and may, for example, specify applications standards and protocols that the supplier must

support. Separate bids are sometimes solicited for voice, video, and data services, as well as combinations of those services, and separate bids are often requested for particular countries or regions.

7. The RFP is followed by the submission of bids by interested suppliers, and generally there are many bidders to provide service to large MNC customers. In addition, after the various bids have been reviewed and the successful bidder or bidders selected by the customer, there is generally a further period of intense negotiation between the customer and the service provider to finalize the terms of the contract. Moreover, these contracts are for only a limited duration, usually one to three years, after which the competitive bidding process is repeated.

8. In my experience, MNCs are also usually quite willing to change their global telecommunications services suppliers when they can obtain better terms or services from another supplier. MNC customers know that they have many choices, that there are many suppliers eager for their business, and that the telecommunications voice and data services available, and the technology employed to provide them, are constantly and rapidly changing.

As a result, MNCs are careful to preserve their flexibility to obtain new or better or cheaper telecommunications services from other suppliers in the future, and it is not at all uncommon for MNCs to shift their business from one supplier to another. For example, Chevron Corporation has announced that it will be moving the bulk of its global network services from

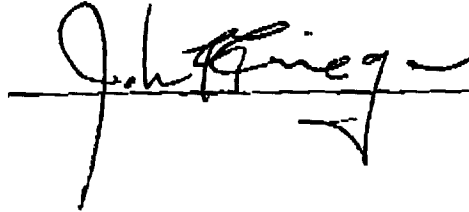
AT&T to Sprint/Global One in May 1999, and General Electric, originally a BT customer in the UK, switched its European business to MCI WorldCom in 1999.

9. Both multi-sourcing and the RFP process facilitate the ability of MNCs to change service providers. With multi-sourcing, the customer is already using the services of two or more service providers and can directly compare the quality and cost of their respective services. Often the customer can adjust the relative portions of service provided by the different carriers. With an RFP, the customer can effectively begin anew by soliciting bids for both new and existing services from both existing and new suppliers. For example, on February 1, 1999, the Department of Defense announced that it was going to replace AT&T as the supplier of telecommunications services to Army and Air Force Exchanges around the world by awarding a seven-year contract to MCI WorldCom, which prevailed over competing bids submitted by AT&T, Qwest, and Sprint.

10. As a result of the large number of competing providers of international telecommunications services capable of meeting the needs of MNCs for global network services, the widespread use of multi-sourcing by MNCs, and the purchase by MNCs of global telecommunications services through competitive bidding, the market for supplying global telecommunications services to MNCs today is intensely competitive, and the mere fact that AT&T is able to count a particular MNC among its customers for global network services does not mean that AT&T has any power to control the purchases of that customer or to in any way "lock in" the customer for AT&T in the future.

DECLARATION

L. John Finnegan, declare under penalty of perjury that the foregoing is true and correct.
Executed on February 17, 1999.

A handwritten signature in cursive script, appearing to read "L. John Finnegan", is written over a horizontal line. The signature is fluid and stylized, with a large initial "L" and a long, sweeping underline.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

**The Global Venture of AT&T Corp. and
British Telecommunications plc**

Applications of AT&T Corporation, VLT Co. LLC,
Violet License Co. LLC and TNV [Bahamas] Limited
for Grant of Section 214 Authority, Modifications of
Authorizations, and Consent to the Assignment of
Licenses

IB Docket No. 92-212

AFFIDAVIT OF THOMAS B. LONDON

1. My name is Thomas B. London. I am currently employed by AT&T Laboratories as the AT&T Transition Leader and the IP Platform/Futures Vice President in connection with AT&T's Global Venture with British Telecommunications plc. In those capacities, I am the AT&T representative leading efforts to specify and develop IP network plans and standards for the Global Venture's global IP network.

2. I have a B.A. from the University of Pennsylvania (1972), an M.S. in Computer Science from Cornell University (1974), and a Ph.D. in Computer Science from Cornell University (1976). In 1976, I joined Bell Laboratories as a Member of Technical Staff. Between 1984 and 1995 I held several management positions in AT&T's Research Organization. Between 1995 and 1998, I held various positions with AT&T Laboratories in its Internet

Platform Development Organization. I served as Director of that organization until September 1998 when I assumed my current position.

3. The purpose of my affidavit is to address claims by GTE Corp. that the AT&T/BT Global Venture plans to employ proprietary Applications Program Interfaces ("APIs") in its IP-based network. Quite the opposite is true.

4. From the Global Venture's inception, AT&T and BT have announced their plans to develop an *open* IP-based global network. Rather than limiting access to the APIs to which its IP-based telecommunications services are written, as GTE claims, the Global Venture plans to make those specifications available both to its own distributors and customers and to third parties to encourage network software and hardware development and to maximize the services and customers the Global Venture can support. Indeed, wherever possible, the Global Venture plans to use existing and developing public domain, IP-based standards sanctioned by the Internet Engineering Task Force ("IETF") and other standards-setting bodies. This open strategy will be one of the Global Venture's most important selling points to both customers and potential distributors – open standards will promote innovation, rapid and cost-effective service creation, and interoperability.

5. Further, because AT&T and BT have concluded that a key to competing successfully for telecommunications customers lies in providing interconnection to the public Internet and deploying open network platforms that will allow customers to integrate their various communications operations, AT&T and BT not only plan to pursue an open standards

strategy with respect to the Global Venture's network, but they also plan, where possible, to conform their own networks to these open standards.

6. There are several compelling reasons why AT&T and BT have chosen an open standards strategy. *First*, it will allow the Global Venture to tap into a substantial and rapidly expanding wealth of knowledge and public domain IP standards and applications. It is this characteristic of IP technology that facilitates rapid, cost-effective service creation. While the Internet may appear to have burst on the scene very recently, the Internet Protocol actually emerged over 25 years ago. In the past two decades, engineers and software developers have generated an enormous pool of software tools and know-how on which anyone using public domain IP standards can rely. Relying on existing protocols and technology therefore greatly reduces development costs and the time required to market new products. This explains in large part the Internet Protocol's resilience. Everyone adopting IP technology obtains a "free-ride" on this body of public knowledge and software. By contrast, developing proprietary network protocols, services, and APIs would mean great delay and expense, and the Global Venture cannot afford *any* such delay given the significant headstarts of competitors such as MCI WorldCom, Cable & Wireless, Global One, and GTE.

7. Moreover, by adopting open standards, AT&T and BT facilitate interoperability between the Global Venture's network and the networks of others, including both distributors and competitors. As a result, distributors' network and system modifications are minimized, their costs go down, and their time to market is accelerated. Obviously, the additional delay and expense that would accompany new proprietary standards would make the Global Venture's

services less attractive to potential distributors and, ultimately, to customers. In addition, open standards increase the likelihood that multiple vendors will compete to create and supply the network hardware and software required by the Global Venture. This competition should not only drive down the Global Venture's costs but ensure a steady stream of innovations from these competing suppliers.

8. *Second*, embracing open standards maximizes the Global Venture's addressable market. A large and growing number of customers are already demanding open standards solutions to their communications needs. Moreover, virtually all customers are already using many applications and services designed to the open IP standards. Recognizing this, other carriers have begun adopting open IP-based standards to gain access to this enormous body of potential customers who are familiar and comfortable with existing open IP standards. The Global Venture plans to do the same. This broad market in turn will encourage third parties to develop applications for the Global Venture's network, increasing the range of available services. In short, basing the Global Venture's network on open, IP-based standards provides access to an existing, massive pool of potential customers already geared-up to use IP technology.

9. *Third*, open standards encourage accelerated innovation through distributed standards development. Instead of just one or two companies working on improvements to a proprietary set of standards, many different companies and literally millions of people push the open IP-based standards forward. Everyone benefits from an innovation in an open standard, not just the innovator. With proprietary standards, the rate of innovation on the Global Venture's

network almost surely would lag the innovation rates on open IP-based networks. AT&T, BT, and the Global Venture would be competing against the collective innovation efforts of all other participants in the telecommunications, computer, and information technology industries – and it would be unreasonable for AT&T, BT, and the Global Venture to expect to win.

10. *Finally*, it is now well established in the Internet marketplace that market forces reward open standards and drive out proprietary standards. That is why there are near constant announcements that telecommunications and technology companies are adopting open standards. For example, BellCore and Level 3 Communications recently agreed to replace their proprietary standards for connecting PSTN and IP networks with an open standard called Media Gateway Control Protocol (“MGCP”).¹ Similarly, Cisco Systems and Motorola recently announced plans to develop a wireless networking system by creating an “‘open architecture’ -- a set of standards” on which “other technology developers can base new services and equipment.”²

11. Companies that have attempted to trump open IP standards with proprietary ones, have met with little success. For example, products like Microsoft Exchange originally were based on proprietary standards that hampered interoperability,³ but the force of consumer demand and IP standard-setting processes soon led them all to adopt the open SMTP, POP-3, and IMAP-4 e-mail standards.⁴ Cisco and Microsoft had a similar experience with their competing

¹ Loring Wirbel, “Major players collaborate on voice-over-IP,” *Electronic Engineering Times* (November 2, 1998), p. 16.

² *See, e.g.*, <http://www.wired.com/CITE>.

³ *Id.*

⁴ Karen Rodriguez, “E-mail messaging opens up,” *Network* (February 1998), p. 34.

proprietary "tunneling" protocols, Layer 2 Forwarding ("L2F") and Point-to-Point Tunneling Protocol ("PPTP").⁵ Customers showed no interest in building virtual private networks around either proprietary standard,⁶ and Cisco and Microsoft ultimately supported an open standard, Layer 2 Tunneling Protocol ("L2TP"), which the Internet Engineering Task Force put on fast track for approval.⁷

12. Of course, embracing open standards does not prohibit the Global Venture, or any other competitor, from innovating and attempting to shape the competitive landscape. AT&T and BT hope that the Global Venture's innovations will play a significant role in the evolution of open IP standards. Without question, however, the Global Venture has a much higher probability of success if it attempts to work within the open IP standards process.

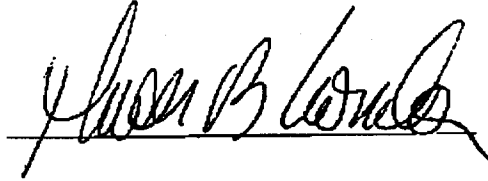
⁵ Tunneling protocols govern secure data transmissions over the Internet. See "Layer 2 tunneling Protocol Sweeps Big Routing Companies, May Drive VPNs," *Communications Today* (August 25, 1998).

⁶ "Layer 2 tunneling Protocol Sweeps Big Routing Companies, May Drive VPNs," *Communications Today* (August 25, 1998).

⁷ David M. Piscitello, "Microsoft and Cisco join forces," *Windows Sources* (January 1998), p. 60.

DECLARATION

I, Thomas B. London, declare under penalty of perjury that the foregoing is true and correct. Executed on February 17, 1999.

A handwritten signature in black ink, appearing to read "Thomas B. London", is written over a horizontal line.

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

| | | |
|---|---|-----------------------------|
| In the Matter of |) | |
| |) | |
| The Global Venture of AT&T Corp. and |) | IB Docket No. 98-212 |
| British Telecommunications plc |) | |
| |) | |
| Applications of AT&T Corp., VLT Co. L.L.C., |) | |
| Violet License Co. L.L.C., and TNV [Bahamas] |) | |
| Limited for Grants of Section 214 Authority, |) | |
| Modification of Authorizations, and |) | |
| Consent to the Assignment of Licenses |) | |
| | | |
| To: The Commission | | |

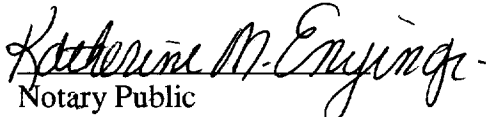
Affidavit of Thomas K. McInerney

1. My name is Thomas K. McInerney. I am Deputy Director, International Cable Management at AT&T Corp. My business address is 340 Mt. Kemble Avenue, Room S240, Morristown, NJ 07960.
2. In my capacity as Deputy Director, International Cable Management, I have acquired a thorough personal knowledge of the existing and planned array of undersea communications cables and landing stations.
3. I have reviewed Section V, Subsection A of AT&T's reply in this proceeding, relating to AT&T's ownership of cable stations. In addition, I was primarily responsible for the preparation of the attached chart, entitled "Cable Stations and Systems." Based on my personal knowledge, and having reviewed these documents, I hereby confirm that they are true and accurate.

I declare, under penalty of perjury, that the foregoing is true and correct to
the best of my knowledge.


Thomas K. McInerney

Sworn to before me this
16th day of February, 1999


Notary Public

KATHERINE M. ENYINGI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Jan. 23, 2001

CABLE STATIONS AND SYSTEMS

YEAR END 1999 FOR ACTIVE AT&T CABLE STATIONS

| ACTIVE CABLE STATION | | CABLE SYSTEM | From CONUS Trans Atlantic Capacity (MIUS) | Caribbean Capacity (MIUS) |
|-----------------------------------|------|--------------------------------------|--|---------------------------------|
| Green Hill, RI | AT&T | TAT-10, TAT-12/13 (Includes Upgrade) | 6552 | |
| Manahawkin, NJ | AT&T | TAT-9, TAT-11 | 1008 | |
| Shirley, LI | AT&T | TAT-12/13 (Includes Upgrade) | 6048 | |
| St. Croix, USVI | AT&T | Pan American, C1, Americas II | | 1008, NA |
| St. Thomas, USVI | AT&T | Taino-Carib, Americas 1 N & S | | 252, NA |
| Tuckerton, NJ | AT&T | TAT-8, BUS 1* | 252 | |
| Vero Beach, FL | AT&T | Americas 1 | 1008 | |
| West Palm Beach, FL | AT&T | Bahamas, Florico 2, Columbus 2 | 1008 | |
| Miramar, PR | AT&T | Americas II | | 5292 |
| AT&T ACTIVE TOTAL FOR YEAR END 99 | | | 15876 | 6552 |

YEAR END 1999 FOR NON AT&T ACTIVE CABLE STATION

| ACTIVE CABLE STATION | | CABLE SYSTEM | From CONUS Trans Atlantic Capacity (MIUS) | Caribbean Capacity (MIUS) |
|---------------------------------------|--------------------|--------------|--|---------------------------------|
| Manasquan, NJ | (90) SPRINT | PTAT, CANUS | 567 | |
| Manasquan, NJ | (98) MCI WORLDCOM | GEMINI | 4032 | |
| Brookhaven LI, NY | 5(98) GCL | AC-1 | 16128 | |
| Charleston, RI | 4(98) MCI WORLDCOM | GEMINI | 4032 | |
| Isle Verde, PR | (93) TLDI | TAINO CARIB | | 252 |
| NON AT&T ACTIVE TOTAL FOR YEAR END 99 | | | 24759 | 252 |

YEAR END 1999 FOR PLANNED CABLE STATIONS

| PLANNED CABLE STATION | | CABLE SYSTEM | From CONUS Trans Atlantic Capacity (MIUS) | Caribbean Capacity (MIUS) |
|--------------------------------------|------------|---------------------------------|--|--|
| Hollywood, FL | 6(99) AT&T | Columbus III, Americas II, MAYA | 26208 | |
| Hollywood 2, FL | 12(99) GCL | MAC ** | 16128 | |
| St. Croix 2, VI | 12(99) GCL | MAC, PAC | | NA, 16128 |
| PLANNED TOTAL FOR YEAR END 99 | | | 42336 | 16128 |

YEAR END 2000 FOR NEW CABLES

| NEW CABLES (or Upgrades) (OLD STATIONS) | | CABLE SYSTEM | From CONUS Trans Atlantic Capacity (MIUS) | Caribbean Capacity (MIUS) |
|--|--------|---------------------|--|--|
| Tuckerton, NJ (Above) | AT&T | TAT-14 | 129024 | |
| Manasquan, NJ (Above) | SPRINT | TAT-14 | 129024 | |
| Brookhaven LI, NY (Above) | GCL | AC-1 (Upgrade) | 16128 | |
| NEW CABLES TOTAL FOR YEAR END 00 | | | 274176 | 0 |

| | | |
|------------------------------------|---------------|--------------|
| AT&T TOTAL FOR 1999 | 42084 | 6552 |
| NON AT&T TOTAL FOR 1999 | 40887 | 16380 |
| AT&T TOTAL FOR 2000 | 171108 | 6552 |
| NON AT&T TOTAL FOR 2000 | 186039 | 16380 |

NA - The Offshore (Island) locations do not add any capacity are primarily transit & interconnect points and if included would simply double count, therefore, they were not added to the total.

* The BUS 1 cable is a private system, US to Bermuda only. Capacity of 1008 was not included in the analysis as it does not go transatlantic.

**The MAC cable has capacity which goes from Florida to L.I., N.Y. and L.I., N.Y. to the caribbean as well but was not included. Only Hollywood 2 to St. Croix was included for MAC.

CERTIFICATE OF SERVICE

I, Cassandra M. de Souza, do hereby certify that I caused a copy of the foregoing Reply Comments of the Applicants to be served this 17th day of February, 1999, by United States First Class mail on:

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*Wireless Reference Room
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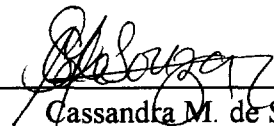
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